

**PRELIMINARY
GEOTECHNICAL REPORT**

**DANVILLE HOTEL SITE
411 HARTZ AVENUE
DANVILLE, CALIFORNIA**

Submitted to:

**Castle Companies
12885 Alcosta Boulevard, Suite A
San Ramon, California 94583**

**Prepared by:
ENGEO**

**July 13, 2010
Project No. 9004.000.000**

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Exhibit K

Project No.
9004.000.000

July 13, 2010

Mr. Steve Garrett
Castle Companies
12885 Alcosta Boulevard, Suite A
San Ramon, California 94583

Subject: Danville Hotel Site
411 Hartz Avenue
Danville, California

PRELIMINARY GEOTECHNICAL REPORT

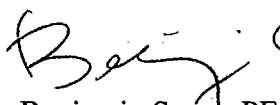
Dear Mr. Garrett:

With your authorization, we completed this preliminary geotechnical report for the proposed development at 411 Hartz Avenue in Danville, California. Our preliminary findings indicate that the study area is suitable for the proposed development. No field exploration was included in our authorized scope for this preliminary study. A site-specific geotechnical exploration should be performed prior to site development to provide design-level conclusions and recommendations for the proposed development.

We are pleased to have been of service to you and are prepared to consult further with you and your design team as the project progresses. If you have any questions or comments regarding this report, please call us.

Sincerely,

ENGEO Incorporated


Benjamin Serna, PE
bs/dsh/rc




Jeff Fippin, GE



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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this preliminary geotechnical report is to provide an assessment of the potential geotechnical concerns associated with the use of the site for the proposed development and to satisfy geotechnical requirements for use in the Tentative Map phase of development. A future design-level study would be required prior to site construction.

This report was prepared for the exclusive use of Castle Companies for the purpose of preliminary site evaluation and feasibility.

1.2 SCOPE

ENGEO's scope of services included the following:

- Site visit
- Review of published geologic maps for the site
- Review of available literature and geotechnical reports pertinent to the site
- Preliminary analysis regarding potential geotechnical hazards
- Preparation of this report

The conclusions and recommendations presented in this report are preliminary in nature. In the event that any changes are made in the character, design or layout of the development, ENGEO should review the conclusions and recommendations contained in this report to determine whether modifications to the report are necessary.

1.3 SITE LOCATION AND DESCRIPTION

The project site encompasses a city block surrounded by Railroad Avenue on the Southwest, Prospect Avenue on the northwest, Hartz Avenue on the northeast, and Short Street on the southeast. Figure 1 includes a map of the site and vicinity. The site covers an area of approximately 1.1 acres and is identified by Contra Costa County Assessor's Parcel Numbers (APN) 208-023-003, 208-023-004, 208-023-008, 208-023-009, and 208-023-024. During our site visit, we observed that the Danville Hotel and other buildings currently used for retail, restaurant, and office space currently occupy the site. Other existing improvements at the site observed during our visit included an asphalt concrete paved parking lot and exterior concrete flatwork.

1.4 PROPOSED PROJECT

Development proposed at the site includes partial demolition and renovation of the Danville Hotel Building and a complete demolition of the other buildings on the site for a total of approximately 46,221 square feet of mixed-use space. The development will include construction

of two 2-story buildings. One 2-story building will be constructed at the corner of Railroad Avenue and Short Street and the other at the corner of Railroad Avenue and Prospect Avenue. The development will include retail and restaurant space on the street level, as well as 29 covered private parking spaces. There will be 14 residential units on the second level with approximately 17,000 square feet of residential space as well as a courtyard. Other proposed improvements include a street-level courtyard, two outdoor seating areas, and new street parking along Short Avenue.

2.0 EXISTING GEOTECHNICAL DATA

We reviewed available geotechnical reports for previous projects within the site vicinity. The attached list of Selected References includes the existing geotechnical reports reviewed as part of this study, which are summarized below.

The "Geotechnical Exploration Report, 432 Hartz Avenue" prepared by ENGEO for a commercial building at 432 Hartz Avenue in Danville, California, dated March 20, 1998, includes two continuous soil probe logs. Probes P1 and P2 were advanced to depths of approximately 25 feet in an asphalt concrete paved area located on the east side of Hartz Avenue (east of the site) as shown on Figure 2. The probe logs include soil descriptions, probe penetration rates, and geotechnical field and laboratory test data. The soil conditions encountered in the probes predominantly consist of silty clay with some approximately 1- to 3-inch-thick sandy soil lenses encountered below a depth of approximately 10 feet. No groundwater was encountered in the soil probes. A laboratory test performed on a near-surface soil sample resulted in a Plasticity Index of 28. The report includes general recommendations regarding consolidation of clay material.

The "Geotechnical Exploration, Rey Building" report prepared by ENGEO for a commercial building at 355 Hartz Avenue in Danville, California, dated August 20, 1996, includes one continuous soil probe log. Probe B-1 was advanced to a depth of approximately 21 feet at the rear of the property located on the west side of Hartz Avenue (northwest of the site) as shown on Figure 2. The probe log includes soil descriptions, probe penetration rates, and geotechnical field and laboratory test data. The soil conditions encountered in the probe predominantly consist of silty clay with some sandy soil seams less than approximately 2 inches thick encountered below a depth of approximately 12 feet. Groundwater was encountered at a depth of approximately 15 feet at the time of probing. A laboratory test performed on a near-surface soil sample resulted in a Plasticity Index of 35. The report includes general recommendations regarding consolidation of clay material.

The "Geotechnical Exploration Report, Short Street Market" prepared by ENGEO for two commercial buildings southeast of Short Street between Railroad Avenue and Hartz Avenue in Danville, California, dated July 30, 1987, includes two soil boring logs. Borings 1 and 2 were drilled to depths of approximately 17½ feet and 18½ feet, respectively. The borings were drilled on the south side of Short Street (southeast of the site) as shown on Figure 2. The boring logs

include soil descriptions, SPT blow counts corrected for samples that were obtained using a Modified California (3-inch outer diameter) sampler, and geotechnical field and laboratory test data. The soil conditions encountered in the borings predominantly consist of silty clay. Groundwater was encountered in Boring 1 at a depth of approximately 9½ feet 3 days after drilling and in Boring 2 at a depth of approximately 10 feet at the time of drilling. An Atterberg Limits test performed on a near-surface soil sample resulted in a Plasticity Index of 22. The report includes general recommendations regarding consolidation of clay material.

The “Geotechnical Investigation, Veterans Memorial Building” prepared by Cornerstone Earth Group for the renovation of the Veterans Memorial Building at 400 Hartz Avenue in Danville, California, dated June 12, 2009, includes four soil boring logs. The borings were drilled to depths of approximately 18 to 40 feet at the approximate locations shown on Figure 2. The boring logs include soil descriptions, blow counts for samples that were obtained using a Modified California (2.5-inch inner diameter) sampler, and geotechnical field and laboratory test data. The soil conditions reported on the borings predominantly consist of clay with a loose sand layer encountered in Boring EB-3. The boring logs also indicate a soft clay layer up to approximately 9 feet thick below a depth of approximately 12 feet. Boring EB-1 encountered material logged as claystone bedrock at a depth of approximately 33 feet. Groundwater was encountered in Borings EB-1 through EB-3 at depths between approximately 13 and 15 feet at the end of drilling.

2.1 SUBSURFACE CONDITIONS

Based on a review of other subsurface data from nearby sites, we have developed a general understanding of the subsurface conditions in the site vicinity. The historic explorations reviewed near the site generally show natural soil conditions that consist of silty clay with some relatively thin loose sand seams. The silty clays tend to be described as medium stiff to hard with a medium to high expansion potential interlayered with soft clay of varying thickness. Bedrock was encountered at a depth of approximately 33 feet in a boring performed by others at a property northeast of the site. None of the explorations reviewed extended deeper than approximately 40 feet.

2.2 GROUNDWATER CONDITIONS

Groundwater was encountered at depths of approximately 9½ to 15 feet in the nearby explorations. It is possible that the groundwater levels had not fully stabilized at the time of the measurements. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation, water flow in nearby creeks, and other factors that may not be present at the time of the previous geotechnical explorations.

3.0 SITE GEOLOGY AND SEISMICITY

3.1 SITE GEOLOGY

The site is in an area mapped as Quaternary alluvium (Qa) surrounded by older alluvium (Qoa) and Tertiary sedimentary rocks (Tor) by Dibblee (2005) as shown on Figure 3. The United States Department of Agriculture (USDA) has mapped the soil at the site as Botella clay loam and Conejo clay loam, which is described as having a moderate shrink-swell potential (USDA, 1977).

3.2 SEISMICITY

No known active¹ faults cross the property and the site is not located within an Alquist-Priolo Earthquake Fault Zone; however, large maximum Moment magnitude² (M_w) earthquakes have historically occurred in the Bay Area and many earthquakes of low magnitude occur every year. The nearest faults zoned as active by the State of California Geological Survey are the Northern Calaveras fault located approximately ½ mile to the southwest, the Concord fault located approximately 4.8 miles to the north, and the Hayward fault located approximately 9.3 miles to the southwest. Figure 4 shows the location of these faults and other active and potentially active faults of the region. In addition, the 2007 Working Group on California Earthquake Probabilities (WGEP) estimates there is a 63 percent probability that a magnitude $M_w = 6.7$ or greater earthquake will occur on the known active fault systems within the Bay Area. The WGEP estimates a 7 percent probability of the same magnitude event occurring on the Calaveras fault within 30 years of their study (2007 – 2037) and the estimate for the Hayward-Rogers Creek fault is 31 percent.

4.0 CONCLUSIONS

It is our opinion, based on the data reviewed for this preliminary study, that the project site is suitable for the proposed construction from a geotechnical standpoint. The primary geotechnical hazards identified during this study include potentially expansive near-surface soil, potentially compressible clay layers, and strong ground shaking. In addition, we have identified liquefaction and corrosivity as potential geotechnical hazards that should be evaluated in detail as part of the design-level exploration. These hazards are common to the area and can be mitigated with a proper foundation system and the use of standard building practices for this region. Recommendations for such mitigation measures should be included in the design-level geotechnical exploration report. We summarize our conclusions below.

¹ An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years). The State of California has prepared maps designating zones for special studies that contain these active earthquake faults.

² Moment magnitude is an energy-based scale and provides a physically meaningful measure of the size of a faulting event. Moment magnitude is directly related to average slip and fault rupture area.

4.1 EXPANSIVE SOIL

A significant geotechnical consideration is the expansive nature of the native soil encountered in nearby explorations by ENGEO. The clayey soils in this region have moderate to high plasticity and medium to high expansion potential. Expansive soils shrink and swell as a result of seasonal fluctuation in moisture content. This can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soils can be reduced through proper foundation design. The design-level exploration ~~should~~ include soil sampling and laboratory testing to evaluate the expansion potential of the site soil.

4.2 MODERATELY COMPRESSIBLE SOIL

As mentioned earlier, moderately compressible soil was encountered in nearby explorations for other projects in the area. This compressible soil layer, if it exists on the subject site could result in total and differential settlement from new loading at the surface associated with new structures or fill. The degree of predicted settlement predicted for nearby projects could be accommodated by traditional foundation systems for new structures constructed at this site. However, if more compressible soil or thicker layers of compressible soil are encountered at the site during the design-level exploration, specially designed foundation systems such as stiffened slab foundations, deep foundations or ground improvement may be necessary to accommodate the anticipated settlement.

4.3 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, lurch cracking, soil liquefaction, lateral spreading, landslides, tsunamis, and seiches. It is our opinion that the risk of lurch cracking, lateral spreading, landslides, tsunamis, or seiches is unlikely at the site.

A preliminary evaluation of the risk of earthquake-induced ground shaking and liquefaction is discussed below. This information should be updated with a detailed site-specific geotechnical exploration for the planned development.

4.3.1 Ground Rupture

Since there are no known active faults mapped crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

4.3.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the 2007 California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAO, 1999).

4.3.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. Empirical evidence indicates that loose silty sands and low plasticity silts are also potentially liquefiable.

Based on interactive mapping available at the Association of Bay Area Governments (ABAG) website, the site is mapped within an area classified as "Moderately" to "Highly" susceptible to liquefaction depending on the earthquake scenario. The site is primarily mapped as potentially liquefiable because of the geologic formation mapped at the site and not based on site-specific information. The penetration rates recorded on the exploratory probe logs in the 1996 and 1998 ENGEO reports cannot be used for performing liquefaction analysis. Although the 1987 ENGEO report includes boring logs with blow count data, it is our opinion that the medium stiff to hard clay encountered in the borings is not susceptible to liquefaction. However, the exploratory borings were not performed to a depth adequate to evaluate the liquefaction potential in the site vicinity. Given the strong ground shaking hazard at the site due to proximity to the Northern Calaveras fault and the relatively shallow groundwater encountered in the nearby explorations by ENGEO, the design-level exploration should include soil borings and/or cone penetration test (CPT) soundings to evaluate potential for liquefaction.

4.4 2007 CBC SEISMIC DESIGN PARAMETERS

We provide the 2007 California Building Code (CBC) seismic parameters in Table 1 below.

TABLE 1
2007 CBC Seismic Design Parameters

| Parameter | Design Value |
|----------------------------------------------------------------------------------------------|--------------|
| Site Class | D |
| 0.2 second Spectral Response Acceleration, S_s | 1.902 |
| 1.0 second Spectral Response Acceleration, S_1 | 0.704 |
| Site Coefficient, F_A | 1.0 |
| Site Coefficient, F_V | 1.5 |
| Maximum considered earthquake spectral response accelerations for short periods, S_{MS} | 1.902 |
| Maximum considered earthquake spectral response accelerations for 1-second periods, S_{MS} | 1.056 |
| Design spectral response acceleration at short periods, S_{DS} | 1.268 |
| Design spectral response acceleration at 1-second periods, S_{D1} | 0.704 |

4.5 SOIL CORROSION POTENTIAL

With regard to pipelines and other buried elements, high chloride concentrations and low resistivity soil conditions can produce corrosive conditions. Based on our experience on projects in the Danville area, we anticipate corrosive conditions at the site. We understand that the San Ramon Valley Fire Protection District considers this area of Danville to be a corrosive area and requires a corrosion study as part of permit approval. An evaluation of the soil corrosion potential performed by a corrosion consultant should be part of the design-level study to develop site-specific design recommendations in order to protect buried pipelines and other elements against corrosion.

5.0 PRELIMINARY RECOMMENDATIONS

5.1 FOUNDATIONS

Based on the findings of this study, we provide the following potential options for new building foundations. We provide limited discussion of alternative foundation types depending on evaluation during the design-level study regarding significance of liquefaction hazard and compressible soil layers relative to building performance. Should the design-level study indicate high probability of liquefaction or significant anticipated soft soil consolidation, the determination of significance to the structure will be an interactive process between the owner, geotechnical engineer, and building designer.

5.1.1 Minor Liquefaction Hazard/Minor Soil Consolidation

Provided that the design-level investigation indicates that liquefaction potential is low and anticipated settlement due to liquefaction and/or soil consolidation is minor, a structural mat or post-tensioned mat foundation bearing on engineered fill would be appropriate for the preliminary foundation design work for the proposed structures. In addition, to reduce expansion potential of compacted fills, we recommend that all clays on site be compacted at a slightly lower relative compaction at a moisture content well over optimum.

A spread footing foundation may be feasible in combination with measures to mitigate the potentially expansive soil, such as the use of imported non-expansive fill within the building pads and extending at least 10 feet laterally beyond building areas. In lieu of importing non-expansive fill, it may be cost effective to lime treat the upper 18 inches of the building pad to reduce the expansion potential of the on-site soil.

5.1.2 Significant Liquefaction Hazard/Significant Anticipated Consolidation

If the design-level study indicates that liquefaction hazard is significant and/or estimates of settlement from consolidation or liquefaction are excessive, a driven pile foundation may be considered. The piles would need to obtain their resistance in friction below any potentially compressible or liquefiable soil. The most common pile foundation systems consist of pre-cast concrete piles or steel H-piles. Due to the proximity of neighboring occupied structures, the noise and vibrations associated with pile driving may make this alternative unfavorable.

As an alternative to driven pile foundations, ground improvement may be a feasible alternative to driven piles. Depending on the depth and extent of potentially compressible and liquefiable soil material, ground improvement consisting of rammed aggregate piers, stone columns, compaction grouting, or soil-cement mixing may be cost-efficient alternatives to a driven pile foundation. If ground improvement were selected, it would extend to a depth below any potentially compressible or liquefiable soil.

5.2 OTHER IMPROVEMENTS

We recommend that non-structural elements, such as pavements and flatwork be designed for the expansive potential of the site soil. Pavements should be designed for relatively low subgrade modulus consistent with the on-site native clayey soil.

Recommendations for foundation type and design criteria and grading should be included in the design-level geotechnical exploration report.

6.0 DESIGN-LEVEL GEOTECHNICAL REPORT

Prior to final project design, we recommend ENGEO be retained to perform a design-level geotechnical exploration at the site. We anticipate that a design-level exploration will include soil borings and/or cone penetration tests within the development areas and laboratory soil testing to provide data for preparation of specific recommendations regarding grading, foundations, and drainage for the proposed construction. The additional explorations will also allow for a detailed evaluation of the expansion and liquefaction potentials at the site, and afford the opportunity to provide techniques and procedures to be implemented during design and construction to mitigate the potential geotechnical hazards.

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents a preliminary evaluation of the geotechnical hazards for consideration of the feasibility of the proposed project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

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FIGURES

Figure 1: Vicinity Map

Figure 2: Site Map

Figure 3: Regional Geologic Map

Figure 4: Regional Faulting and Seismicity Map

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BASE MAP SOURCE: MS STREETS AND TRIPS



VICINITY MAP
DANVILLE HOTEL SITE
DANVILLE, CALIFORNIA

PROJECT NO.: 9004.000.000

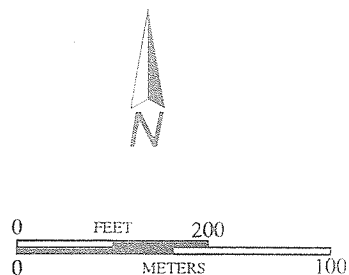
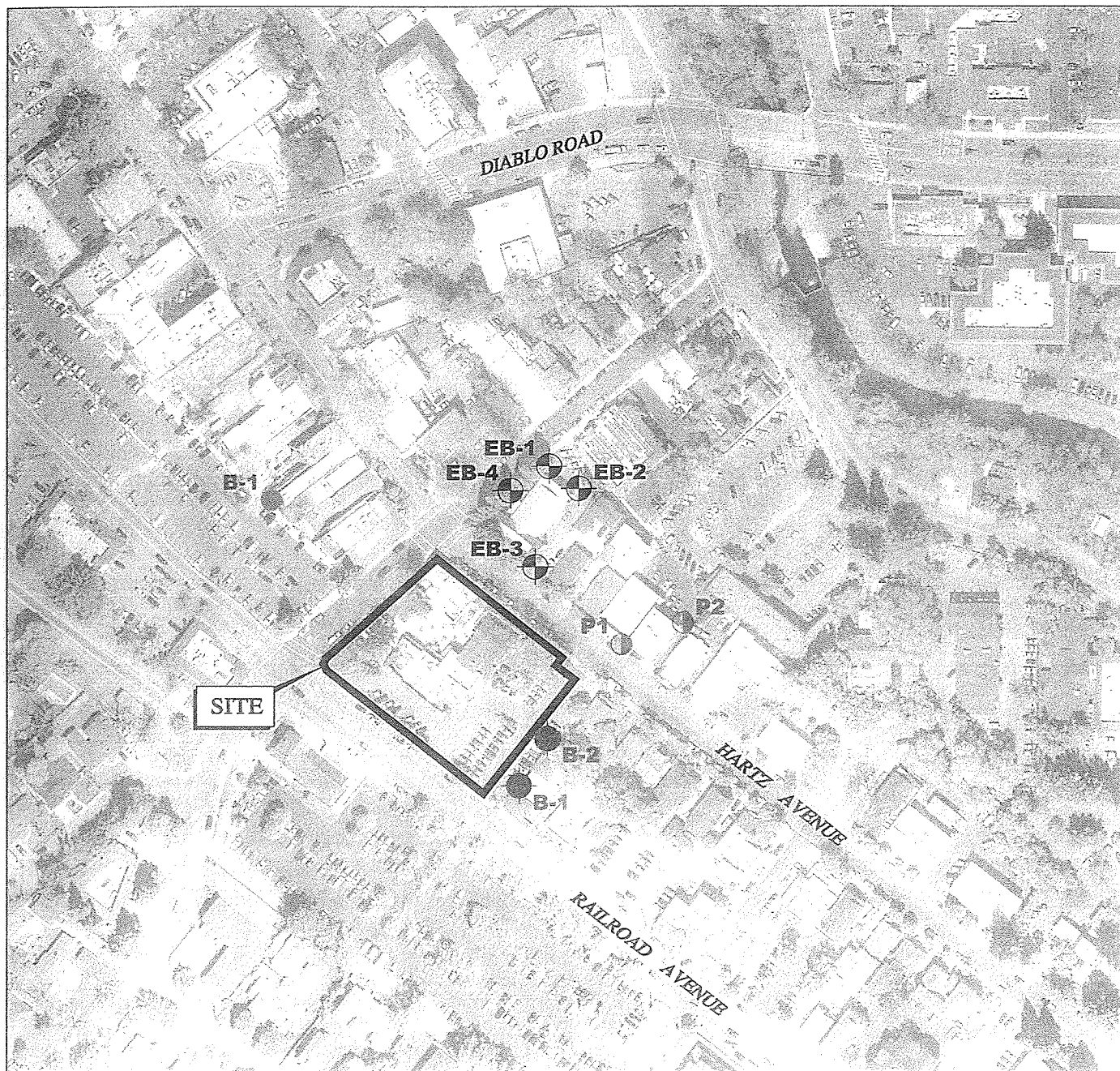
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FIGURE NO.

1



EXPLANATION

- EB-4 APPROXIMATE LOCATION OF BORING (CEG, 2009)
- B-2 APPROXIMATE LOCATION OF BORING (ENGEO, 1987)
- P2 APPROXIMATE LOCATION OF PROBE (ENGEO, 1998)
- B-1 APPROXIMATE LOCATION OF PROBE (ENGEO, 1996)

BASE MAP SOURCE: USGS EROS DATE CENTER, 2008



SITE PLAN
DANVILLE HOTEL SITE
DANVILLE, CALIFORNIA

PROJECT NO.: 9004.000.000

DATE: JULY 2010

DRAWN BY: PC

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FIGURE NO.

2

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EXPLANATION

--- BEDROCK CONTACT-DASHED WHERE GRADATIONAL OR APPROXIMATELY LOCATED

--- FAULT-DASHED WHERE INFERRED, DOTTED WHERE CONCEALED, QUERIED WHERE EXISTENCE IS DOUBTFUL

AXIS OF FOLD

← ↑ → ANTICLINE ← ↓ → SYNCLINE

STRIKE AND DIP OF STRATA

↗ INCLINED ⊥ VERTICAL ⊘ OVERTURNED

- Qa ALLUVIAL PEBBLE GRAVEL, SAND, AND CLAY
- Qoa DESSICATED ALLUVIAL GRAVEL AND SAND
- Tor ORINDA FORMATION
- Tbr BRIONES SANDSTONE
- Tmc MONTEREY FORMATION (CLAY SHALE)
- Tm MONTEREY FORMATION (SILICEOUS CLAY)

0 FEET 2000
0 METERS 1000



BASE MAP SOURCE: DIBBLEE, 2006



REGIONAL GEOLOGIC MAP

DANVILLE HOTEL SITE
DANVILLE, CALIFORNIA

PROJECT NO.: 9004.000.000

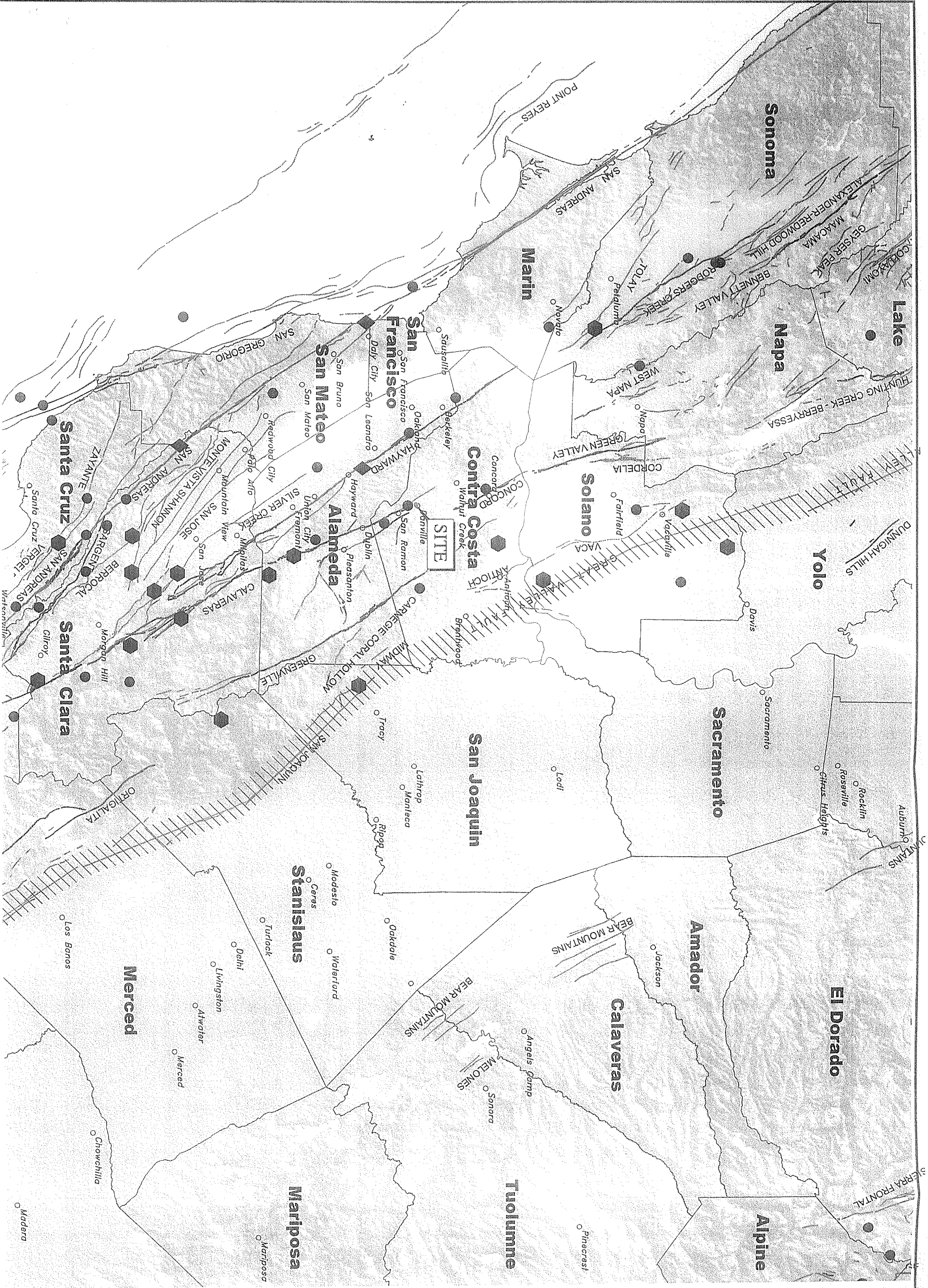
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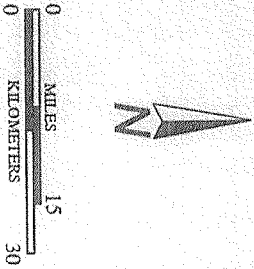
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FIGURE NO.

3



BASE MAP SOURCE:
 U.S.G.S. 1-ARC SECOND S.R.T.M. DATABASE
 U.S.G.S. QUATERNARY FAULT DATABASE, MARCH, 2006
 U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-2000)



EXPLANATION

- MAGNITUDE 7+
- MAGNITUDE 6-7
- MAGNITUDE 5-6
- HISTORIC FAULT
- HOLOCENE FAULT
- QUATERNARY FAULT
- HISTORIC BLIND THRUST FAULT ZONE

ENGEO
 Expect Excellence

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